Space Weather Forecast

Issued on Monday 10 March 2025 at 01:10 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Isolated Moderate class flares. Spell of Active to G1 Minor Storms, and chance G2 Moderate storm intervals expected day 3-4 (12-13 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only a few small Common class flares observed, with the strongest from near the southeast limb. This was likely ahead of a new region rotating on the disc. There are seven visible regions on the disc, however these have been mostly fading, including the larger region in the southwest disc. The only notable development has been observed in the bipolar region in the northeast, with the emergence of a small reverse polarity region near its trailer spot.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: A connection to the fast wind of a coronal hole was observed. Solar winds rose from elevated at around 500km/s to peak Strong at near 700km/s, before easing back to around 600km/s. Total Interplanetary Magnetic Field was Moderate to Strong at first but eased to be Weak from 09/1000UTC. The north-south component was Moderate at first, and favouring a southward orientation. This eased to be Weak and more variable from 09/1200 UTC. Geomagnetic activity was Active to G1 Minor Storm (Kp4-5), with one G2 Moderate Storm interval (09/0300-0600 UTC) until 09/1500 UTC, with Unsettled activity then following (Kp3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) was at Background with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast, with a chance of Isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no CMEs expected to impact Earth. However, a very slight glancing interaction cannot be ruled out on day 2 (11 Mar) from the passing Moderate flare CME which occurred on 07 Mar, as it misses to the south. Ongoing fast winds are expected to ease, with background or near background winds likely by day 3 (12 Mar). The next fast wind enhancement is then expected late day 3 or day 4 (12-13 Mar). Quiet to Unsettled conditions are expected day 1-3 (10-12 Mar) with a decreasing chance of Active intervals. Any fast wind

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connection later day 3 or day 4 (12-13 Mar) is expected to bring a further spell of Active to G1 Minor Storms with a chance of G2 Moderate storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to be at Background with no Solar Radiation Storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	**G1 to G2**	Yes	5	5	30	70
Strong	**G3**	No	1	1	1	1
Severe	**G4**	No	1	1	1	1
Extreme	**G5**	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**R1-R2 (M Class)**	No	40	40	50	50
Very Active	**R3-R5 (X Class)**	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	1	2	5	5
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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